

WHAT IS CLAIMED IS:

1. A link bus between control chipsets, said control chipsets including a first control chip and a second control chip, said link bus comprising:

5 a first address/data (AD) bus for transmitting address and data chiefly from said first control chip to said second control chip; and

a second address/data bus for transmitting address and data chiefly from said second control chip to said first control chip.

2. The link bus of claim 1, wherein said first AD bus is a common bi-directional bus.

10 3. The link bus of claim 2, further comprising a first command signal line for transmitting a request signal to said second control chip from said first control chip.

4. The link bus of claim 2, wherein said first control chip has a higher priority in respect of controlling said first AD bus.

15 5. The link bus of claim 1, wherein said second AD bus is a common bi-directional bus.

6. The link bus of claim 5, further comprising a second command signal line for transmitting a bus request signal to said first control chip from said second control chip.

7. The link bus of claim 5, wherein said second control chip has a higher priority in respect of controlling said second AD bus.

20 8. The link bus of claim 1, wherein said first control chip is a north bridge chip, and said second control chip is a south bridge chip.

9. The link bus of claim 1, wherein said first control chip is a south bridge chip, and said second control chip is a north bridge chip.

10. A method for arbitration a link bus between control chipsets, said control chipsets including a first control chip, a second control chip, said link bus including a first address/data (AD) bus, and a second address/data bus, said method comprising:

transmitting address and data through said first AD bus from said first control
5 chip to said second control chip;

transmitting a request from said first control chip to said second control chip
when said first control chip needs said second AD bus;

holding said second AD bus if said second control chip is still transacting
through said second AD bus; and

10 transmitting address and data from said first control chip to said second control
chip through said second AD bus after a turn-around cycle if said second control chip
doesn't need said second AD bus.

11. The method of claim 10, further comprising:

transmitting a request signal from said second control chip, if said second
15 control chip needs said second AD bus, when said first control chip is transacting
through said second AD bus;

stopping transacting through said second AD bus; from said first control chip;
and

transmitting address and data from said second control chip to said first control
20 chip through said second AD bus after a turn-around cycle.

12. The method of claim 10, wherein said first control chip is a north bridge chip,
and said second control chip is a south bridge chip.

13. The method of claim 10, wherein said first control chip is a south bridge chip,
and said second control chip is a north bridge chip.

14. An arbitration method of a link bus between control chipsets, said control chipsets including a first control chip, and a second control chip, said link bus including a first address/data (AD) bus, and a second address/data bus, said arbitration method comprising:

5 controlling said second AD bus to transmit address and data from said second control chip to said first control chip;

 transmitting a request from said second control chip to said first control chip when said second control chip needs said first AD bus;

 holding said first AD bus if said first control chip is still controlling said first
10 AD bus; and

 controlling said first AD bus to transmit address and data from said second control chip to said first control chip after a turn-around cycle if said first control chip doesn't need said first AD bus.

15. The arbitration method of claim 14, further comprising:

15 transmitting a request signal from said first control chip, if said first control chip needs said first AD bus, when said second control chip is still controlling said first AD bus;

 stopping controlling said first AD bus from said second control chip; and

 controlling said first AD bus to transmit address and data from said first control
20 chip to said second control chip after a turn-around cycle.

16. The arbitration method of claim 14, wherein said first control chip is a north bridge chip, and said second control chip is a south bridge chip.

17. The arbitration method of claim 14, wherein said first control chip is a south bridge chip, and said second control chip is a north bridge chip.